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U. S. FOREST SERVICE
Region 6

5200
Portland, Oregon
April 1972

# SURVEY PLAN FOR MONITORING DEFOLIATOR POPULATIONS IN EASTERN OREGON AND WASHINGTON

## OBJECTIVES

The objectives of this survey are to:

1. Detect low-level forest defoliator populations (Douglas-fir tussock moth, western spruce budworm, and others).

2. Determine population trends in advance of an outbreak.

3. Indicate areas where research plots should be established.

The first two objectives serve Forest Pest Control aims. The latter will provide useful information for research scientists making detailed studies on the major defoliators. Forest Supervisors and District Rangers will be consulted before any permanent research plots are established on their Forests.

## THE SURVEY

Defoliator monitoring plots will be established in areas where major defoliators are known to have been abundant or where outbreaks actually occurred. A minimum of eight plots will be established on each East Side Ranger District.

The survey will be made by beating the limbs of plot trees and collecting all "worm-like" larvae that fall onto a ground cloth. The specimens will then be sent to the Regional Office for identification. The plots will be sampled annually by District personnel from mid-June to July 1, depending upon larval development.

## SURVEY METHODS

Plot establishment - Regional Office entomologists will train District personnel how to select and establish the survey plots. The plots are to be widely distributed on each District and their location will be marked on a 1/2-inch District map and a copy sent to I&DC, Regional Office, Portland, Oregon. When a plot is established the following data will be recorded on plot record forms and a copy sent to I&DC. Be sure to keep a record and map for your file!

# DEFOLIATOR PLOT SHEET

Plot No._____ County_____

State_____ Ranger Dist._____

Forest_____ Compt._____ _____ Cell_____
(Name) (No.) (No.)

Plot Location T_____, R_____, Sec._____

Tree Species Sampled: D.F. D.F. D.F. TF TF TF

Stand Age (Estimate)_____Yrs. Elev._____Ft.

Timber Type_____

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

## TIME DATA

| TRAVEL TIME TO PLOT | SAMPLING TIME PER TREE | | |
|---|---|---|---|
| | No. 1 | No. 2 | No. 3 |
| Ending_____ | _____ | _____ | _____ |
| Start_____ | _____ | _____ | _____ |
| Total_____ | _____ | _____ | _____ |
| Laboratory Time | _____ | _____ | _____ |

If a plot is destroyed by logging or any other reason, a new one will be established in suitable forest type in the immediate vicinity and a new permanent plot record will be made.

Plots must be near easily recognizable locations, at least 100 feet away from dusty roads, in true fir or Douglas-fir stands. Plots to be distributed throughout District on different ridges.

Each plot will consist of a cluster of three trees within a 5-acre area. The plot should have sufficient numbers of sample trees to insure a good random selection. Plot trees should be about 12 to 25 feet tall.

The plots should be sampled soon after the buds of Douglas-fir and true firs have burst and new growth has begun to elongate.

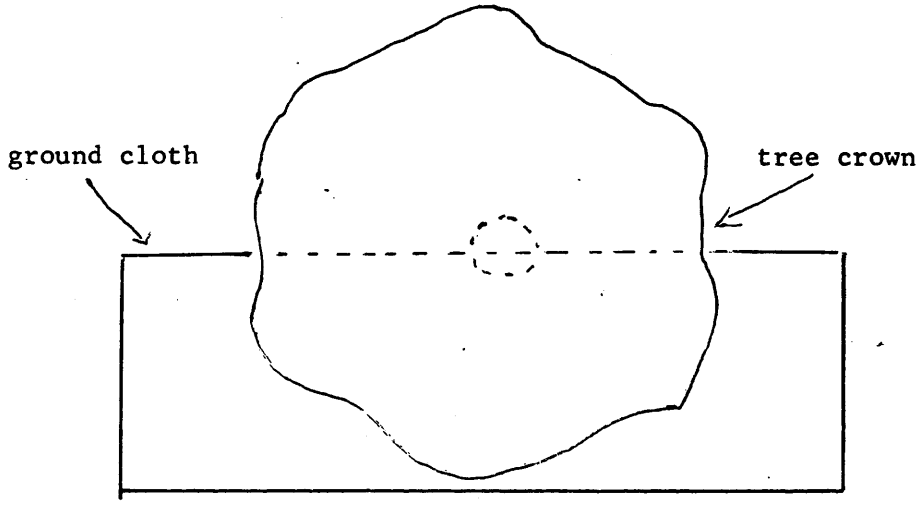
A collecting kit containing 24 collecting vials, and shipping box will be sent directly to each District about the time the survey should be made. A 10-foot by 7-foot ground cloth will be provided.

Beating and Collection Instructions:

1. Select areas of susceptible host type--Douglas fir or true fir.

2. Select 3 small trees, preferably between 12 to 25 feet in height.

3. Place a 10-foot by 7-foot ground cloth on the ground under one side of the tree. The cloth should be placed so the outer edge will extend 6 to 12 inches beyond the drip line of the crown:



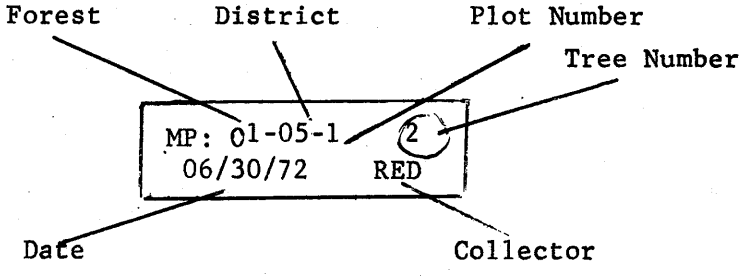
4. Start at the top as high as can be reached. Beat downward on the foliage. The standard number of beats per tree is ten.

5. Sample only one side of the tree.

6. Collect only those insects that are caterpillar or "worm-like". Refer to "A Field Guide to Important Forest Insects of Oregon and Washington" by L. F. Pettinger (copy enclosed) to aid in separating these animals.

7. Preserve the insects from each tree in a separate vial containing isopropyl alcohol. The insects should be completely covered with the alcohol.

8. Place a label in each vial. Use white tablet paper for label, make it small to fit in vial. Using a soft lead pencil (never a ball point pen), record plot number, tree number, date and collector's initials. The plot numbers will include the Forest and District standard codes and a number for the specific plot.




9. If no insects are present on a tree, omit the alcohol, fill out a label and insert in a vial, and write "none" on the reverse side.

10. Tighten the caps on the vials before packing. Repack the shipping box with the collection vials, map and plot record forms, and return to Insect and Disease Control Branch, Regional Office, Portland, as soon as possible. The annual collections should reach the Branch of Insect and Disease Control one week after collection.

Each Forest and District will be notified of the results of the survey.

Reply (Acknowledgement)

ADDRESS: District Ranger

Ranger District_____

National Forest_____

_____

City State Zip

MESSAGE:

Defoliator Monitoring Survey

Thanks for your help with the 197_ survey. Examination of the specimens you collected shows that budworm or tussock moth larvae (were) (were not) present in the sample.

If any target insects are present, you may be contacted later by research scientists from the PNW Station.

Branch Chief,
Insect and Disease Control
Timber Management

A new collection kit will be sent next year when it is time to repeat this survey.